October 15, 2001

Mr. Jon Heinrick
Department of Natural Resources
Bureau of Air Management
P. O. Box 7921
Madison, WI 53707

Dear Mr. Heinrick:

The following are the Wisconsin Public Service Corporation (WPSC) comments regarding the Department of Natural Resources' (DNR) proposed revision to the Wisconsin Administrative Code relating to the control of atmospheric deposition of Mercury. WPSC presented oral testimony at the public hearing held in Rhinelander, Wisconsin in opposition to the proposed rule. These written comments are intended to supplement the oral testimony.

GENERAL COMMENTS RELATING TO THE NEED AND ADEQUACY OF THE RULE

Secretary Bazzell's letter of June 5, 2001 to the Natural Resources Board in part states,

"The Board directed staff to develop proposed rules that protect public health and the environment, and are also cost-effective, reasonable, and do not interfere with the ability of electric utilities to supply the State's energy needs. Under the authority of s.285.11(9). Wis. Stats., proposed administrative rules have been developed to reduce mercury emissions."

It is our opinion that the proposed rules fail in accomplishing the directives given to the agency by the Board.

The rule is not designed to protect public health and the environment.

Environmental exposure to mercury can come from a variety of vectors including direct inhalation or through consumption of contaminated fish. In 1988 the Department promulgated Ch. 445 Wisconsin Administrative Code, which regulates the emissions of hazardous air contaminants. According to Secretary Bazzell,

"Mercury is one of the pollutants regulated under Ch. NR 445. However, emissions from fossil fuel combustion, including mercury emissions, are exempt from Ch. NR 445. A recent re-analysis of the appropriateness of this exemption concluded the emissions from coal combustion were significantly below levels which could pose an inhalation risk to the public, and that the exemption from Ch. NR 445 requirements continued to be appropriate." (page 5 letter of 6-5-01)

Based on this determination, it is concluded that further reductions in mercury emissions are not required *to protect the public health from exposure via inhalation pathways.*

Wisconsin utility contributions to the mercury burden in Wisconsin lakes are a subject of much discussion and uncertainty. Estimates range from 10 to 50% as coming from in-state sources. Secretary Bazzell states that "based on USEPA studies, the Department estimates that in-state sources may contribute up to 50% of the deposition in Wisconsin's water bodies." This estimate is in conflict with DNR's own researchers who have indicated that the percentage is considerably lower than 50%. The Department's Bureau of Research pointed out at the February 2001 DNR board meeting that Wisconsin's in-state contribution from Wisconsin utilities is approximately 17%. Other scientists have estimated the in-state contribution to be approximately 10%. The 7% difference can be explained by the different estimates of the amount of elemental mercury that is emitted versus the oxidized form as well as the percent estimated for near source deposition.

However, let us assume for the moment that the correct number is 17% and that all utility mercury falls within the boundaries of the State as opposed to in Lake Michigan for example. Current estimates by the DNR Bureau of Research indicate that 70% of the oxidized mercury emitted is deposited within 100 km of the source. If that is indeed correct, virtually all of the in-state oxidized mercury emissions never reach the vast majority of the sensitive receptor resources located in the northern area of the State. Therefore, reduction of source emissions will not result in a reduction in deposition to these sensitive lakes and hence will not result in a significant reduction in fish and wildlife exposures in these areas. In this context *the rule fails to protect the public health and environment as well.*

The rule does not allow for a cost effective and reasonable solution for compliance.

The theory that DNR advances in the June 5, 2001 letter to the DNR Board and in the "Draft Decision on the Need for an Environmental Impact Statement", relative to cost and feasibility is seriously flawed. DNR relies heavily, if not exclusively, on a report completed in a collaboration effort of USEPA and the Department of Energy's National Energy Technology Laboratory (NETL).

It must be recognized that the NETL report is a preliminary document and should not be used as support for an undertaking of this magnitude. The authors condition the report with the statement:

"The performance and cost estimates of the PAC injection-based mercury control technologies presented in this report are based on relatively few data points from pilot-scale tests and, therefore are considered to be preliminary. Factors that are known to affect the adsorption of mercury on PAC or other sorbent include the speciation of mercury in flue gas, the effect of flue gas and ash characteristics, and the degree of

mixing between flue gas and sorbent. This mixing may be especially important where sorbent has to be injected in relatively large ducts. The effect of these factors may not be accounted for in the relatively few pilot-scale data points that comprise the basis for this work. Ongoing research is expected to address these issues and to improve the cost effectiveness of using sorbents for mercury control. Further research is also needed on ash and sorbent residue to evaluate mercury retention and the potential for release back into the environment."

Using the preliminary NETL report, the DNR presented costs and technology selections that are inappropriate and incorrect. DNR made the assumption that the 30% reduction in baseline emissions could be accomplished by controlling one large unit per utility to a rate of control of 70%. They continued this logic and estimated that the 50% phase could be accomplished by controlling two units at each utility. They also assumed that injection of activated carbon for control would not affect the potential for re-using fly ash as a concrete additive. These assumptions allowed DNR to seriously underestimate the cost of controls to these levels.

WPSC estimates that even if the control technology would work as indicated in the preliminary NETL report the 30% phase would require controls on two large units and the 50% phase would require controls on four of our largest units.

DNR has also avoided including the cost of fly ash disposal in their cost estimate. The Electric Power Research Institute has estimated that because of activated carbon being more active than fly ash carbon, an amount of activated carbon in the ash equivalent to as low as 0.5% unburned carbon on a weight basis could make the ash unusable for concrete (versus 3% to 4% for normal unburned carbon).

DNR has calculated the costs for all of the affected utilities to be:

- $8 Million/yr. for the 30% phase
- $17 Million/yr. for the 50% phase and
- $35 Million/yr. for the 90% phase

NOTE: DNR has since revised their estimates based on the discovery of an error. They now estimate:

- $9-20 Million/yr. for 30%
- $20-38 Million/yr. for 50% and
- $117/yr. for 90%

WPSC stand alone compliance costs, which include the additional units, and the fly ash land filling costs will be:

- $14.8 Million/yr. for 30%
- $23.3 Million /yr. for 50%

WPSC's compliance with the 90% reduction phase will require the retirement of approximately 600 MWs of coal-fired generation which will be replaced with natural gas fired combined cycle units. This will result in costs of:

- $102.9 to 106.8 Million/yr. for 90%

Based on this information it is our opinion that *DNR has failed to develop rules that are cost effective and reasonable.*

DNR has failed to develop rules that do not interfere with the ability of the electric utilities to supply the States' energy needs.

As was pointed out above, the 90% reduction phase will cause a major fuel switch within WPSCs' system. This coupled with the 1.5/1.0 offset requirement for new sources will cause future electric generating plants to be fueled by sources other than coal. This will most likely be natural gas with a small amount of re-newables. Considering that the infrastructure to supply gas as a fuel is not yet available and it will likely be extremely difficult to locate and build, the lack of additional pipeline capacity may have a significant effect on reliability. Wisconsin utility customers will be further subjected to the price volatilities associated with the natural gas market. The increased use that will be required by the construction of large numbers of electric generators will drive prices of electricity and home heating even higher.

<u>COMMENTS RELATING TO THE DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT</u>

In general, the report is long on conjecture and innuendo and woefully short on data. For example, on page 4 the agency describes the importance of fishing license and fishing revenue to the State but does not produce data to demonstrate that this type of tourism and recreational revenue has diminished as a result of mercury advisories. If there is credible data that show such a cause/effect the DNR should refer to it.

A section on page 7 indicates that other states have initiated actions to reduce mercury emissions with the implication that Wisconsin is not going down this path alone. What they fail to report is that these states have very little mercury emissions and that rules enacted in those states will have little or no effect on the internal industry. (Nor will they have much of an effect on those states environment). For example, the Department states that Maine has enacted legislation to limit mercury emissions by any source to 100 lbs. per year by the year 2000 and to 50 lbs. per year by the year 2004. What DNR neglected to report was that the utility contribution for the entire state was approximately 10 lbs. per year in 1999. They also cited rules in New Hampshire and Massachusetts that limit mercury emissions by a variety of control percentages. What DNR neglected to mention that those two states also have utilities that emit 36 lbs. per year and 292 lbs. per year respectively. These situations have no valid comparison to the rulemaking that DNR is attempting promulgate.

DNR states on page 17, Section C that the reduction of air emissions will result in a reduction of the deposition of atmospheric mercury and eventually will lead to a reduction of mercury in fish tissue. This logic on a simplistic basis is difficult to argue with. However, at what cost, what time frame and at what levels of reduction will we expect to see reductions in fish tissue mercury. DNR does not have a credible database to substantiate these assertions other than conjecture.

DNR presents Chart A on page 18 that purports mercury accumulations increasing in the environment as a result of no (State?) action. The implication that DNR makes is if they do not act, 70,890 pounds of mercury will have accumulated in the environment from major electric utility plants located in Wisconsin. DNR conveniently ignores the fact that the USEPA is under court order to develop a draft MACT standard by 2003 and have final rules in place by 2004. This national effort will have perhaps a greater effect on reducing accumulations in Wisconsin than what a state only rule will have. DNR should be encouraged not to engage in such deceptive tactics.

DNR has failed to assess the environmental effects of this rule as it relates to solid waste disposal. By assuming that the salability of fly ash would not be affected, DNR has ignored a major effect of this rule. The ash currently being used as cement replacement in concrete will be land filled. This will create accelerated pressures on existing landfill sites and will require the development and operation of new sites.

The environmental effects of disposing mercury in landfills, especially when co-disposed with municipal wastes have recently been investigated. Researchers have found that municipal landfills emit mercury in concentrations similar to those found in power plant plumes. Disposing of mercury-containing ash will only add to the total mercury burden in the landfill, which will increase the potential for re-emission. Unfortunately, it also increases the opportunity for the largely elemental mercury found in ash to be converted to a monomethyl form, which is soluble in water and can have a much greater impact on the environment. This is an issue that DNR must consider when developing rules for airborne mercury reductions.

<u>COMMENTS SPECIFIC TO THE PROPOSED RULE</u>

NR 446.04 Baseline determination

The proposed methodology in Section NR 446.04(1) (c)1-3 cannot be used to estimate the baseline for WPSC's Weston Unit 3. This unit does not have the same pollution control equipment that existed during the baseline years of 1998-2000. The decision to replace the hot side precipitator with a cold side fabric filter was made to maintain particulate control performance and with consideration to reduce mercury emissions. Although the exact mercury removal percentage is not known at this time, the EPA's ICR data indicate that cold side fabric filters are significantly more efficient at removing mercury as compared to hot side precipitators. If WPSC is forced to use the fabric filter efficiency for baseline calculations WPSC will be penalized.

This method can be used on the other units that WPSC operates because the equipment is essentially the same and we are burning essentially the same coal that we did during the baseline years.

NR 446.05 Emission offsets

The provision to require offsets for new or modified sources that increase annual mercury emissions of 10 pounds or more is arbitrary and inappropriate. It appears that this section would not apply if the new or modified source would increase its emission by 9.9 pounds but would if the increase was 10 pounds or more annually. It would also appear that a new or modified source would be required to offset its emissions by a factor of 1.5/1.0 for every pound if over 10 pounds and not just the amount over a 10 pound threshold. Applying this rule to a hypothetical case, two stationary sources could be located on adjacent properties; one emitting 9.9 pounds of oxidized or even perhaps some monomethyl mercury and the other emitting 10 pounds of elemental mercury. The less than 10-pound source, even though it is emitting mercury species that have a significantly greater potential to cause environmental effects would not be subjected to the rule. The other source, even though its emissions would not have a comparable effect as its neighbor, would be required to offset those emissions at a ratio of 1.5/1.0. This doesn't make much sense. If emission offsets are to remain in any future rule the concept of a threshold should be explored in greater detail.

This provision has an even greater potential to force the utility industry away from constructing new electric generating stations that are powered by coal. The very real potential exists that there simply will not be enough offsets available to permit these new sources. This is especially true considering that the Department has indicated its intent to establish a program that only allows credits that are obtained through air emission reductions to be applied on a one-to-one basis. All other mercury removal programs, such as the removal of elemental mercury from electrical devices for example, would be credited on a one-tenth pound for every pound collected. If a new source were estimated to release 25 pounds of mercury annually, the permit could not be issued until that source had offset its emissions by collecting 15,000 pounds of elemental mercury. This number is derived by multiplying 25 pounds annually by 1.5 pounds per pound multiplied by 10 (because of the $1/10^{th}$ credit) and again multiplied by 40 (a reasonable life expectancy for a new electric generating station). Short of retiring existing coal-fired plants, a utility could not find enough mercury in the State to build new facilities. Considering the amount of mercury available in fluorescent tubes a utility could get its offsets by capturing the mercury in 1 billion tubes. If lucky, they could find approximately 9.5 million mercury containing light switches and capture the mercury in those.

NR 446.07 Mercury-containing products reduction projects

This section appears to have been written to discourage rather than encourage any programs to remove mercury. It limits projects to those that remove 50 lbs. or greater

annually, it penalizes those who have embarked on effective mercury removal projects in the past and it requests information that contain estimates whereupon the Department apparently will exercise its judgment on how to determine what credit these programs will yield. This section should be developed with the intent of encouraging mercury removal and recognizing efforts that are ongoing and have occurred at least since the baseline years.

NR 446.11 Annual mercury emissions determination

This section details the process for annual compliance and as such is a very critical component of the rule. The section identifies with some specificity the processes for compliance monitoring and mass balance calculations. WPSC understands that this will be an arduous process and is in all probability one of the few options available. The Department must understand that mercury sampling and analysis in these types of media is very difficult to do with a high level of accuracy. The EPA's ICR demonstrated that point quite effectively. EPRI conducted evaluations of laboratories throughout the country and found a great disparity in results generated using known samples.

Consideration should be given to allowing compliance with less frequent sampling and analysis, without being classified in the Alternative Emission Monitoring section. For units burning essentially the same fuel and following the same operational mode, i.e., base load 24/7 operation, sampling and testing could be suspended after the source has demonstrated that a reasonable estimation can be made by using amount of fuel in and verification of operation hours.

NR 446.12 Variance for major utilities

Although this variance procedure may allow for some relief from extraordinary circumstances, the provisions in this section gives little comfort to a source in the event that the equipment fails to perform as DNR has projected.

In summary, WPSC appreciates this opportunity to offer these comments and anticipates that they will be given serious consideration when this rule is modified or in the best of conditions abandoned.

Sincerely,

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